FACT SHEET MARCH 2014

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Criteria Pollutants: Lead (Pb)

Office of Air Quality – Air Programs Branch

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Description:

- Lead is a soft, dense, naturally-occurring metal that has long been used in a wide variety of applications. Exposure to lead in the ambient air can be harmful to humans and animals, with young children being at the highest risk for lead poisoning.
- Lead is commonly used in the manufacture of building materials, lead-acid batteries, ammunition, weights, medical equipment and coatings for high-voltage power cables.
- Sources of lead in ambient air include smelters, mining operations, waste incinerators, battery recycling, and the production of lead shot and fishing sinkers. Lead is also released by the burning of coal, oil, solid waste and the use of leaded aviation gasoline in piston engine powered aircraft. Prior to the phase-out of leaded gasoline between 1973 and 1996, motor vehicles were the largest source of lead in the atmosphere.

National Ambient Air Quality Standards (NAAQS) for Lead:

- The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (U.S. EPA) to set National Ambient Air Quality Standards (NAAQS) for six "criteria" pollutants that are considered harmful to public health and the environment. The six criteria pollutants are: particulate matter, carbon monoxide, ground-level ozone, nitrogen dioxide, sulfur dioxide, and lead.
- The NAAQS set limits for the criteria pollutants in the ambient air. Limits established to protect human health are referred to as "primary standards"; limits established to prevent environmental damage are referred to as "secondary standards".
- The CAA requires periodic review of the science upon which the NAAQS are based, as well as the standards themselves. The NAAQS for lead was last updated in October 2008.
- The primary and secondary NAAQS for lead measured as a not to be exceeded rolling three-month average limit concentrations to 0.15 micrograms per cubic meter of air.

Environmental Impacts:

- Exposure to airborne lead typically occurs when a person breathes in or swallows lead dust or other lead-containing particles, such as contaminated soil.
- High levels of lead are most often found near roads, older homes, old orchards, power plants, factories, mining areas, landfills, and hazardous waste sites. Older buildings are of particular concern because they often contain surfaces coated with lead-based paint. If not maintained or properly removed, this paint can produce lead dust.
- Children and people who work with lead constitute the two highest risk groups for lead exposure. Because of children's smaller size and unique metabolism, their bodies absorb proportionately more lead than those of adults. People whose jobs include metalworking, rubber and plastic molding, construction, home remodeling, or other activities involving lead-containing materials are also at high risk. The most common route of exposure for these workers is inhalation.
- Once in the body, lead accumulates in the soft tissues and the bones, in particular, where it may continue to enter the blood stream over a period of years. Studies indicate that long-term exposure can cause muscle weakness and loss of coordination, and also permanently lower IQ in children.
- Other symptoms and effects of lead poisoning include abdominal pain, anemia, decreased appetite, weight loss, hypertension, muscle twitches, and reproductive problems for both men and women.

IDEM's Role:

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial, and governmental operations vital to a prosperous economy.
- IDEM is responsible for protecting air quality in Indiana through the implementation of federal, regional, and state

control measures, regulations, and ambient air monitoring.

- IDEM works to protect and improve air quality by monitoring air quality, issuing advisories for the public when air quality may be unhealthy, and educating citizens and businesses about their roles in improving air quality.
- Indiana operates an extensive monitoring network to gather data on levels of criteria air pollutants in the ambient air. The data is used to determine if Indiana's air meets the NAAQS. Areas within Indiana which meet air quality standards are classified as "attainment" or, if they exceed the air quality standards they are classified as "nonattainment".
- For areas not achieving (attaining) air quality standards, IDEM will work to help communities implement programs to achieve the standards as quickly as possible.
- Data from Indiana's air monitoring network is also used to identify trends in Indiana's air quality and to provide information for U.S. EPA's AIRNow website and the National Air Quality Index (AQI), a daily air quality report.

Citizen's Role:

There are a number of actions every citizen can take to reduce their contribution or exposure to lead:

- IDEM is working hard to protect the air quality in our state, but there are also things individuals can do to help protect themselves and others from the harmful effects of lead. First, people should be aware of possible danger from either inhalation or ingestion of lead. Second, they should use recommended precautions if the presence of lead is suspected. The following information is provided to help you avoid exposure to lead and prevent lead poisoning.
  - Buildings constructed before 1978 likely have lead-based paint under top coats of non lead-based paint, or may even have lead-based paint as top coatings. If lead-based paint is disturbed by construction or damage, harmful dust is released into the air. Deterioration of lead-based paint over time results in lead-contaminated paint chips or smaller lead-contaminated residue depositing on surfaces. Such residue can harm a small child if ingested, even in tiny amounts.
  - The plumbing in some older buildings may contain lead pipes or lead solder may have been used to fuse pipe joints. Individuals should use good judgment when deciding whether or not tap water from a particular source is safe for drinking. In some cases, it may be advisable to have water tested for lead by a certified laboratory.
  - Soil can contain harmful levels of lead and be innocently tracked into a home.
  - Products of all kinds may contain lead, so care should be taken to buy from trusted sources. Extra care should be taken when choosing storage containers for food and drinks.
  - Certain hobbies can be harmful if materials used in the hobby aren't properly researched and safe practices are not followed.

Additional Information:

- For more information on lead, please visit these IDEM websites:
  - www.IN.gov/idem/airquality/2343.htm for lead-specific information and information for other criteria pollutants for Indiana.
  - www.IN.gov/idem/airquality/2489.htm for air quality monitoring data for lead and other pollutants.
  - www.IN.gov/idem/airquality/2430.htm for lead attainment demonstrations.
  - www.IN.gov/idem/airquality/2424.htm for the nonattainment status for Indiana counties or townships.
- U.S. EPA provides basic information about lead in drinking water at http://water.epa.gov/drink/contaminants/basicinformation/lead.cfm.
- U.S. EPA provides information about lead for homeowners at www.epa.gov/lead.
- The Indiana State Department of Health provides lead safe work practices on its website at http://www.in.gov/isdh/19155.htm.
- For further information on the NAAQS, visit U.S. EPA's website at http://epa.gov/air/criteria.html.
- For questions and concerns, feel free to call IDEM's Office of Air Quality at (317) 233-0178 or (800) 451-6027, ext. 3-0178.